

DESIGNING WINERY FACILITIES FOR PEAK PERIODS

19th November, 2015

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DESIGNING WINERY FACILITIES FOR PEAK PERIODS

- Form follows function – what is the function?
- What is making a difference in the cellar right now?
- Excluding fruit transport, mixing clones / varieties
- The 5 (or 6) Ps
- Opportunity cost – e.g. labour
- Magic bullets?

HARVESTERS



- Pellenc & Gregoire
- On-board destemmer
- Doesn't do shrivel
- Cost sharing / tension
- What's that to do with winery flow?



HARVESTERS

CASE STUDY:

- 25% whole bunch, luxury level pinot noir
- Old Way:
 - 100 T = 5 - 6 days hand pick (approx)
 - Ripen > 2 Baumé / week *easily* during hot spell
- New Way:
 - Hand pick the WB component, machine balance same night
 - Direct tip to fermenters
 - Re-deploy or knock off crusher staff. Crusher used *much* less
 - All picked at target flavour ripeness
 - Save time, money, energy & make better wine

GRAPE BINS & PRESS LOADING

- Too obvious but too common – keep simple things simple
 - Bigger bins, more efficient
 - Clear space for loading & unloading, split level if possible
 - Minimise moving parts
 - Quantifying the opportunity cost?

Press Program Mock up																																																																								
Date:	15/02/2016																							16/02/2016																							17/02/2016																									
Time:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Press																																																																								
1	Bloggs CHA - MP						Smith CHA - MP						House CHA - HP						Xi CHA - HP						Bloggs CHA - MP						Smith CHA - MP						House CHA - HP						Xi CHA - HP						Bloggs CHA - MP						Smith CHA - MP						House CHA - HP						Xi CHA - HP					
2	Bloggs CHA - MP						Smith CHA - MP						House CHA - HP						Xi CHA - HP						Bloggs CHA - MP						Smith CHA - MP						House CHA - HP						Xi CHA - HP						Bloggs CHA - MP						Smith CHA - MP						House CHA - HP						Xi CHA - HP					
3	Obama CHA - MP						Trump SAB - MP						Cameron CHA - HP						Obama CHA - MP						Trump SAB - MP						Cameron CHA - HP						Obama CHA - MP						Trump SAB - MP						Cameron CHA - HP						Obama CHA - MP						Trump SAB - MP						Cameron CHA - HP					
4	Obama CHA - MP						Trump SAB - MP						Cameron CHA - HP						Obama CHA - MP						Trump SAB - MP						Cameron CHA - HP						Obama CHA - MP						Trump SAB - MP						Cameron CHA - HP						Obama CHA - MP						Trump SAB - MP						Cameron CHA - HP					

COLD SETTLING VS FLOTATION



- Refrigeration in heatwave
 - More kg fruit per week
 - More kJ heat per kg to remove
 - Diminished fridge performance
 - Power supply & costs
 - Chill first, then warm up
- Tank Space
 - 2-3 days before ferment, plus lees tank(s)
 - Or... into ferment same day



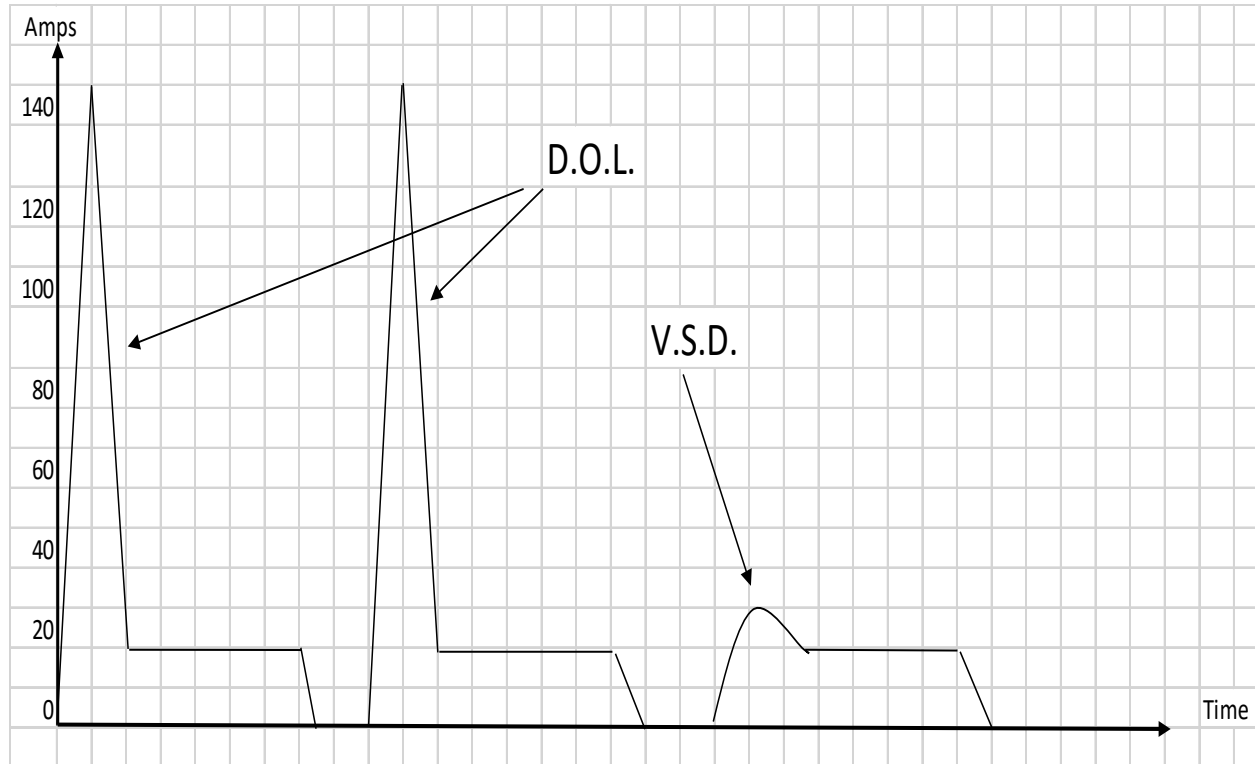
ELECTRICAL SUPPLY



- Symptom: Fuses (supply exceeded)
- Causes: Overlap, low volts



ELECTRICAL SUPPLY



- 100 Amps – common threshold
- Radio Telemetry – staggered starts
- VSD (start up only):
 - Must Pump: ~ 30 amps
 - Air Compressor: ~ 30 amps
 - Fridge Comp: ~ 30 amps
 - Fridge Fans: ~ 5 amps

ELECTRICAL SUPPLY

- Base Load Savings:

- LED Lights: ~ 6 amps
- Air con to 25°C: ~ 4 amps

- Irrigation Case Study:

- Fuses = lost irrigation, lost quality, lost income
- Only tripped during summer - why?
- 440 V – 380 V
- About to sign off \$100K board upgrade
- Fixed with \$17 K V.S.D.



ELECTRICAL SUPPLY



- RAPS
 - Remote Area Power Systems
 - Batteries, Solar + Diesel
 - Diesel only in most efficient range
 - 64% saving in fuel



(ROUGH) BACK OF THE ENVELOPE...

Kit	Old Way (\$K)	New Way (\$K)
Press	150	150
Fridge	200	0
Tanks	100	0
Board (inc CT Metering)	160	0
Float	0	12
VSD / Radio / Auto / LED	0	100
TOTALS (approx)	610	262

- Harvest in 7 days what once took 14 days
- Still need the press (sorry, no magic...)
- Save ~ \$350 K, plus energy and running costs